CLAIMS

What we claim is:

1. An automated method for treating a subject suffering from insomnia comprising:

choosing a behavioral therapy for the treatment of insomnia that utilizes information indicative of the subject's wake/sleep state;

providing passive wake/sleep determination means to produce information indicative of the subject's wake/sleep state without action required on the part of the subject; and

implementing the steps of the behavioral therapy utilizing the wake/sleep information as appropriate.

2. The method of claim 1 in which the behavioral therapy is chosen from the group consisting of stimulus control therapy, sleep restriction therapy, and combinations of stimulus control therapy and sleep restriction therapy.

3. The method of claim 1 in which the behavioral therapy is stimulus control therapy.

4. The method of claim 1 in which the behavioral therapy is sleep restriction therapy.

5.   The method of claim 1 in which the passive wake/sleep determination means is chosen from the group consisting of EEG, EKG, EOG, actigraphy, body movement, galvanic skin response, respiratory changes, eye movements, and combinations of two or more of the passive wake/sleep determination means.

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6.   The method of claim 1 in which the sleep determination means comprises EEG.

7.   The method of claim 1 in which drug therapy is used in conjunction with the behavioral therapy.

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8.   The method of claim 1 in which active means for determining the wake/sleep state are used to supplement the passive wake/sleep determination means.

15   9.   The method of claim 3 in which the stimulus control therapy is implemented using standing rules that are always running and special rules that run only during sleep onset, the rules comprising:

as standing rules, 1) never alert a subject while they are asleep, 2) after any sleep less than a first predetermined number of contiguous minutes do not permit an alert until at

20   least a predetermined number of contiguous epochs of wake are achieved, and 3) after any sleep of at least the first predetermined number of contiguous minutes, examine a past second predetermined number of minutes and if the subject was awake for at least a third predetermined number of minutes out of the past second predetermined number of minutes, alert the subject; and

as special rules, 1) if there is no sleep of at least a fourth predetermined number of contiguous minutes within a first period of trying to fall asleep, then alert the subject upon a lapse of the first period, 2) if there is a contiguous sleep period contained within the first period of trying to fall asleep that is greater than or equal to the fourth predetermined

5   number of minutes but less than the first predetermined number of minutes, then inhibit the alert for an additional period.

10.   The method of claim 9 in which the first predetermined number of contiguous minutes is 10 minutes, the predetermined number of contiguous epochs is 2, the

10   second predetermined number of contiguous minutes is 15 minutes, the third predetermined number of minutes is 14 minutes; the fourth predetermined number of contiguous minutes is 5 minutes; the first period is 20 minutes, and the additional period is 10 minutes.

11.   A system for treating a subject suffering from insomnia attempting to sleep

15   in a bed comprising:

means for powering on the system;

means for passive wake/sleep determination;

means for determining whether the subject should get out of the bed according to the appropriate behavioral therapy rules; and

20   means for alerting the subject to leave the bed if a determination is made according to the appropriate behavioral therapy rules that the user should get out of the bed.

12. The system of claim 11 including system diagnostics which check the status of the components of the system.

13. The system of claim 11 including means permitting the subject to review and adjust system settings chosen from the group consisting of time, age, sleep goals, alert preferences, language, setup parameters, and display preferences.

14. The system of claim 13 including means permitting the user to review information previously acquired by the system.

15. The system of claim 11 including means for computing the subject's overnight sleep statistics when the sleeping is finished.

16. The system of claim 11 in which in-bed status data is acquired along with the wake/sleep data.

17. The system of claim 16 in which means are provided for the turning off of any alert, and displaying the subject's current sleep statistics, when a determination is made that the subject is no longer in bed.

18. The system of claim 16 in which means are provided for the turning off of any alert, and for providing the subject with sleep instructions when a determination is made that the subject is no longer in bed.

19. The system of claim 11 in which the alerting means are chosen from the group consisting of a text display of warning conditions, text display of instructions or information, activation of display backlight, blinking light, audible indication, tactile indication, synthesized or recorded voice, low level electrical stimulus or an aroma generated by appropriate device.

20. The system of claim 19 in which the alerting means is a tactile indication.

21. The system of claim 19 in which the alerting is an audible indication.

22. The system of claim 11 including means for allowing the subject to specify a predetermined wakeup time.

23. The system of claim 11 including subject controlled means for canceling the alerting means.

24. The system of claim 11 including a visual or audible presentation of instructions or information.

25. The system of claim 11 in which the wake/sleep determination means are chosen from the group consisting EEG, EKG, EOG, actigraphy, body movement, galvanic skin response, respiratory changes, eye movements, and combinations of two or more of the wake/sleep determination means.

26.   A system for treating a subject suffering from insomnia attempting to sleep in a bed comprising:

means for powering on the system;

means for determining whether the system is in a training mode;

means for passive wake/sleep determination;

means for determining whether the subject has completed their sleep period and is out of bed, and if so computing overnight sleep statistics;

means for calculating sleep restriction therapy program parameters based on previously acquired sleep data; and

means for displaying the calculated sleep restriction therapy program parameters for upcoming sleep sessions.

27.   The system of claim 26 including system diagnostics which check the status of the components of the system.

28.   The system of claim 26 including means permitting the subject to review and adjust system settings chosen from the group consisting of time, age, sleep goals, alert preferences, language, setup parameters, and display preferences.

29.   The system of claim 26 including means permitting the user to review information previously acquired by the system.

30.   The system of claim 26 including means for displaying overnight sleep statistics or parameters.

31. The system of claim 26 including means enabling the subject to review and adjust appropriate sleep restriction therapy program parameters after display of such parameters for an upcoming sleep session.

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32. The system of claim 26 including means for calculating additional information relating to a time interval corresponding to the highest likelihood of sleeping to assist the subject in planning their sleep schedule to further increase their chances of sleep.

10   33. The system of claim 32 including means for alerting the subject as they approach the time interval corresponding to the highest likelihood of sleeping.

34. The system of claim 26 including means for alerting the subject after they have been in bed for a recommended length of time.

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35. The system of claim 26 including means permitting the subject to specify a predetermined wakeup time.

36. The system of claim 26, configured to be wearable by the subject.

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37. The system of claim 11, configured to be wearable by the subject.